

## Claims

1. A demultiplexing method for supplying input data received from an input channel to a plurality of output channels,

wherein said plurality of output channels are connected to a plurality of physical protocol layer devices having the same interface address allocated,  
comprising the steps of:

- 10 a) providing an input buffer (301) connected to said input channel and a plurality of output buffers (311 to 314) respectively connected to said plurality of output channels;
- b) storing said input data in said input buffer;
- 15 c) determining whether all of the output buffers (311 to 314) are capable of receiving data, and
- d) releasing transmission of said input data from said input buffer to said plurality of output buffers, when all of said plurality of output buffers are capable of
- 20 receiving data.

2. A method according to claim 1, wherein said input and output buffers are FIFO buffers.

25 3. A method according to claim 2, wherein said plurality of physical protocol layer devices are UTOPIA level 1 compliant.

30 4. A method according to claim 3, wherein said plurality of output channels are connected to a plurality of ATM devices having the same interface address allocated.

5. A method according to claim 4, wherein said input channel is connected to an ATM device (200).

6. A method according to claim 5, wherein said ATM device is UTOPIA level 1 or level 2 compliant.

7. A method according to claim 6, including a multiplexing method for supplying input data received from one of a plurality of the output channels now functioning as input channels, to the input channel now functioning as an output channel,

comprising the steps of:

- 10 a) using said output buffers (311 to 314) as a plurality of input buffers respectively connected to said plurality of input channels, and using the input buffer (301) as an output buffer connected to said output channel;
- b) storing said received input data in a respective one of 15 said plurality of input buffers; and,
- c) releasing transmission of said input data from said respective one of said plurality of input buffers to said output buffer, when said output buffer is capable of receiving data.

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8. A demultiplexing apparatus for supplying input data received from an input channel of said demultiplexing apparatus to a plurality of output channels thereof,

wherein said plurality of output channels are connected to 25 a plurality of physical protocol layer devices having the same interface address allocated,

comprising:

- a) input buffer means (301) for storing said input data;
- b) a plurality of output buffer means (311 to 314)
- 30 respectively connected to said plurality of output channels; and
- c) control means (320) for determining whether all of the output buffers (311 to 314) are capable of receiving data, and for releasing a transmission from said input buffer means (301) to said plurality of output buffer means (311

to 314), when all of said plurality of output buffer means (311 to 314) are capable of receiving data.

9. A demultiplexing apparatus according to claim 8,  
5 wherein said input (301) and output (311 to 314) buffer  
means are FIFO buffers.

10. A demultiplexing apparatus according to claim 9,  
wherein said control means (320) is arranged to receive a  
control signal indicating the receiving capability from  
anyone of said plurality of output buffer means (311 to  
314), and to supply a release signal to said input buffer  
means (301), when said control signal has been received  
from all of said plurality of output buffer means (311 to  
15 314).

20 11. A demultiplexing apparatus according to claim 10,  
wherein said input channel is connected to an ATM device  
(200).

12. A demultiplexing apparatus according to claim 11,  
wherein said ATM device (200) is UTOPIA level 1 or level 2  
compliant.

25 13. A demultiplexing apparatus according to claim 12,  
wherein said plurality of physical protocol layer devices  
(101 to 104) are UTOPIA level 1 compliant.

30 14. A demultiplexing apparatus according to claim 13,  
wherein said output channels are connected to a plurality  
of ATM devices having the same interface address allocated.

35 15. An apparatus according to claim 14, forming a  
multiplexing apparatus for supplying input data received  
from one of the plurality of the output channels now

serving as input channels of said multiplexing apparatus to the input channel now serving as an output channel thereof, comprising:

the plurality of output buffer means (311 to 314) serving  
5 as a plurality of input buffer means respectively connected to said plurality of input channels, wherein said input data is stored in a respective one of said plurality of input buffer means; the input buffer means (301) serving as output buffer means connected to said output channel;

10 the control means (320) being adapted for releasing a transmission from said respective one of said plurality of input buffer means to said output buffer means, when said output buffer means is capable of receiving data.

15 16. A method according to claim 1, wherein said plurality of physical protocol layer devices are UTOPIA level 1 compliant.

20 17. A method according to claim 1, wherein said plurality of output channels are connected to a plurality of ATM devices having the same interface address allocated.

25 18. A method according to claim 1, wherein said input channel is connected to an ATM device (200).

19. A method according to claim 4, wherein said ATM device is UTOPIA level 1 or level 2 compliant.

20. A method according to claim 1, including a  
30 multiplexing method for supplying input data received from one of a plurality of the output channels now functioning as input channels, to the input channel now functioning as an output channel,  
comprising the steps of:

a) using said output buffers (311 to 314) as a plurality of input buffers respectively connected to said plurality of input channels, and using the input buffer (301) as an output buffer connected to said output channel;

5 b) storing said received input data in a respective one of said plurality of input buffers; and,

c) releasing transmission of said input data from said respective one of said plurality of input buffers to said output buffer, when said output buffer is capable of

10 receiving data.

21. A demultiplexing apparatus according to claim 8, wherein said control means (320) is arranged to receive a control signal indicating the receiving capability from anyone of said plurality of output buffer means (311 to 314), and to supply a release signal to said input buffer means (301), when said control signal has been received from all of said plurality of output buffer means (311 to 314).

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22. A demultiplexing apparatus according to claim 8, wherein said input channel is connected to an ATM device (200).

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23. A demultiplexing apparatus according to claim 8, wherein said plurality of physical protocol layer devices (101 to 104) are UTOPIA level 1 compliant.

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24. A demultiplexing apparatus according to claim 8, wherein said output channels are connected to a plurality of ATM devices having the same interface address allocated.

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25. An apparatus according to claim 8, forming a multiplexing apparatus for supplying input data received from one of the plurality of the output channels now

serving as input channels of said multiplexing apparatus to the input channel now serving as an output channel thereof, comprising:

the plurality of output buffer means (311 to 314) serving  
5 as a plurality of input buffer means respectively connected to said plurality of input channels, wherein said input data is stored in a respective one of said plurality of input buffer means; the input buffer means (301) serving as output buffer means connected to said output channel;

10 the control means (320) being adapted for releasing a transmission from said respective one of said plurality of input buffer means to said output buffer means, when said output buffer means is capable of receiving data.